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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,300	12/09/2004	Gino Palumbo	BROO300	5590
23364 7590 05/27/2009 BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314-1176				
EXAMINER				
LEADER, WILLIAM T				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
05/27/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/516,300

Applicant(s)

PALUMBO ET AL.

Examiner

WILLIAM T. LEADER

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)
Paper No(s)/Mail Date 11/26/2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Receipt of the papers filed on January 12, 2009, is acknowledged. Claims 1-33 are pending
2. The amendment to claim 17 has overcome the rejection under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 112

3. Claims 1-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
4. Applicant has amended claim 1 to recite an agitation rate of "0.01 to 10 liter per min per cm² anode or cathode area. Basis is given as paragraph [0021] of the patent application publication. Claim 31 has been amended to recite an agitation rate "in the range of 1 to 750 milliliter per min per applied Ampere average current" while claim 33 has been amended to recite an agitation rate "in the range of 1 to 750 ml solution per min per applied Ampere average current" Basis is given as paragraph [0026] of the patent application publication. However, neither of these numerical ranges recited in the claims appears in the specification as filed and they are considered to introduce new matter.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1-12, 15, 17, 27-31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erb et al (US 5,433,797) in view of the Lowenheim text *Electroplating* and additionally in view of Biberbach et al (US 3,929,595) and Gonzalez et al (6,743,346) for the reasons of record.
7. Claims 16, 18-25 and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Erb et al (US 5,433,797) in view of the Lowenheim text *Electroplating* and additionally in view of Biberbach et al (US 3,929,595) and Gonzalez et al (6,743,346) as applied to claims 1-12, 15, 17, 27-31 and 33 above, and further in view of the admitted prior art for the reasons of record.
8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erb et al (US 5,433,797) in view of the Lowenheim text *Electroplating* and additionally in view of Biberbach et al (US 3,929,595) and Gonzalez et al (6,743,346) as applied to claims 1-12, 15, 17, 27-31 and 33 above, and further in view of Uzoh et al (US 7,378,004) for the reasons of record.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erb et al (US 5,433,797) in view of the Lowenheim text *Electroplating* and additionally in view of Biberbach et al (US 3,929,595), Gonzalez et al (6,743,346) and the admitted prior art as applied to claims 16, 18-25 and 32 above, and further of Hutkin (US 4,088,544) for the reasons of record.

Response to Arguments

10. Applicant's arguments filed January 12, 2009, have been fully considered but they are not persuasive. With respect to the rejection under 35 U.S.C. 112, first paragraph, at page 9 of the Remarks, applicant notes that the numerical range recited in claim 1 is not recited in the application as filed but nevertheless meets the description requirement because of *In re Wertheim*. This argument is not persuasive. There is no indication that applicant had possession of the specific numerical ranges now claimed at the time the application was filed. The range disclosed in paragraph [0021] as filed is less than or equal to 10 liter per min per cm² anode or cathode area (0.0001 to 10 l/min cm²). The range disclosed in paragraph [0026] is 0 to 750 ml/min/A (ml solution per minute per applied Ampere average current), preferably 0 to 500 ml/min/A. These disclosed ranges are different than the ranges now recited in the claims.

11. At page 10 of the Remarks, applicant acknowledged that it is known to utilize electrolyte mixing to maintain uniform electrolyte concentration and uniform temperature in the electrolyte to avoid the formation of gradients in the electrolytes. Applicant argues that this is different from the agitation rate claimed which is expressed and defined in the term of liter per min per cm² anode or cathode area whereas electrolyte mixing is expressed in volume per time unit or

rpm and additionally that electrolyte mixing cannot control grain size. These arguments are not convincing. Electroplating parameters such as agitation may be expressed using different units of measurement. However, using different units to characterize a parameter does not confer patentability when the parameter itself is the same. The rejection referred to page 139 of the Lowenheim text *Electroplating*. In the next-to-last paragraph Lowenheim explains that convection is important in electroplating and involves the movement of substantial quantities of the solution relative to the electrodes. The electrodes may move, the solution may move or both. In the last paragraph, Lowenheim describes generating convective movement by agitating the cathodes using a commercially available rod agitator, by stirring the solution with propellers, or by pumping the solution through heat exchangers. Clearly, Lowenheim suggests agitation. It is noted that in paragraph [0026] of applicant's patent application publication, applicant discloses that the electrolyte solution may be agitated by stirrers or pumps. These are the same devices taught by Lowenheim. In the last paragraph of page 10 of the Remarks, applicant argues that the electrolyte mixing of Lowenheim cannot control grain size. This argument is not persuasive. Lowenheim teaches agitating using stirrers or pumps. There is no basis to conclude that this agitation of Lowenheim would not control grain size when agitation by applicant using stirrers or pumps does.

12. At page 11 of the Remarks, applicant observes that Erb doesn't mention agitation rate normalized to electrode area or applied Ampere average current or deposition rate. This observation is correct. Nevertheless, as also observed by applicant, Erb does teach stirring electrolytes at 0-500 rpm. Applicant characterizes that as electrolyte mixing not agitation as

claimed. "Agitate" is defined as "to move to and fro", or "to shake or move briskly" (Dictionary.com based on the Random House Dictionary). Based on the dictionary definition of "agitate" even if the movement of Erb is considered to be electrolyte mixing, it falls within the accepted meaning of "agitate" since 500 rpm may be considered brisk movement. However, even if for the sake of argument Erb itself is not considered to suggest agitation, this patent was applied in combination with Lowenheim, Biberbach et al and Gonzalez et al. At the bottom of page 11 of the Remarks, applicant argues that the discussion in Lowenheim is irrelevant to modification of Erb to provide agitation rate normalized to electrode areas and deposition rate to control grain refinement. This argument is not persuasive. For the reasons given in the previous paragraph, Lowenheim is considered to disclose the advantages of providing agitation of the electrolyte solution. These advantages would have applied to the process of Erb. As stated in the previous office action, Biberbach recognizes that agitation affects the rate of deposition, while Gonzalez teaches that to obtain high productivities, the baths have to operate at the highest possible current density and a high temperature, and a high agitation rate is often necessary. Even if the relationship between agitation and control of grain refinement is not specifically disclosed by the references, the use of agitation in Erb would have been obvious to have obtained the advantages recognized by the prior art. The fact that applicant may have recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

13. At pages 12 and 13 of the Remarks applicant argues that the additional prior art applied doesn't overcome the deficiencies previously explained. For the reasons given above, the rejections of record are deemed to be proper.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM T. LEADER whose telephone number is (571) 272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William Leader/

May 7, 2009

/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795